

PRELIMINARY AMENDMENT
U.S. Appln. No. 09/313,184

REMARKS

Applicants repeat the amendments to claims 16 and 30-35 as presented in the Amendment under 37 C.F.R. § 1.116 filed January 21, 2003, but unentered. New claim 36 finds support, for example, by reference to Fig. 11 and the written description at pages 21-22 of the specification.

Additionally, Applicants respectfully request the Examiner to return initialed Form PTO/SB/08 A & B (modified) for the Information Disclosure Statement filed April 4, 2003, resubmitted herewith.

Review and reconsideration on the merits are requested.

Claims 30-35 stand rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent 5,672,811 to Kato et al. Claim 31 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato et al. Claim 33 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato et al in view of U.S. Patent 5,384,630 to Yagi et al. Claims 16-20 and 22-24 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kato et al in view of JP '773 or U.S. Patent 4,657,659 to Mase et al. The grounds for rejection remain the same as set forth in the previous Office Action.

Applicants traverse, and respectfully request the Examiner to reconsider in view of the following remarks.

The basis for rejection is that Fig. 2 of Kato et al. is said to show electrode 28 having an area larger than twice the size of electrode 24. However, it is respectfully submitted that such presumption is unwarranted and not supported by the specification of Kato '811.

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Particularly, as described at column 9, lines 39-41, Fig. 2 of Kato '811 shows a cross section taken along line A-A of Fig. 1-which says nothing about the subject electrode areas. Namely, the rejection is based an assumption that the widths of electrodes 28 and 24 are the same. However, there is no reason to assume that such is the case. Furthermore, there is nothing in the specification of Kato '811 which describes these electrodes in a manner which would allow for determining their relative areas. Moreover, there is nothing in Kato '811 which describes any advantage of making the area of electrode 28 at least twofold that of electrode 24, and Kato '811 is entirely silent with respect to the relationship between electrode area ratio and element resistance.

In fact, the Examiner is unable to point to any disclosure in Kato '811 or the prior art as to the respective widths and/or areas of electrodes 28 and 24, or to any instruction in the prior art for selecting an electrode width/area for the specific sensor shown in Fig. 2 of Kato '811.

In support of the rejection, as set forth in the Advisory Action dated February 12, 2003, the Examiner was of the view that:

First, Kato does not in any way indicate that his electrodes are varying widths. If they were, Kato presumably would have shown such a configuration in a figure. Second, it is clear from Fig. 1 that the chambers (8, 10) which has the electrodes 28, 24 are elongated. The widths of the chambers are substantially smaller than their lengths. The electrodes, then, cannot extend much in a width direction, and any variance in the electrodes width would be quite small compared to the electrodes lengths. Since area is length times width, the ratio of the areas would still be within the 2:1 to 5:1 ratio claimed by Applicant even if the electrodes widths varied.

Applicants respectfully disagree.

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The suggestion that Kato '811 presumably would have shown such a configuration if the electrodes were of varying widths is nothing more than conjecture. The prior art must be applied against the claimed invention based on what is disclosed, not based on supposition.

Furthermore, Applicants also respectfully disagree with the reasoning that the electrodes cannot extend much in a width direction, such that any variance in the electrode width would be small compared to the electrode length, as follows.

Attached hereto are marked-up Figs. 1 and 2 of Kato '811, showing, in cross-hatch, what these figures would lead one of ordinary skill to employ as the electrodes 28, 24. Particularly, because of the narrow width of diffusion controlling passage 14, electrode 28 would be selected to have a correspondingly narrow width as shown. Conversely, electrode 24 opposing electrode 16 may extend along substantially the entire width of the chamber 10. In this configuration, which is entirely reasonable based on the drawings of Kato '811, it is clearly seen that the area of the negative electrode and the area of the positive electrode would not differ by at least two fold as claimed.

Because there is no disclosure or illustration in Kato '811 as to the two-dimensional size or relative area of electrodes 28 and 24, presumably the rejection is based on principles of inherency (a claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference).

However, to establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. The mere fact that a certain thing may result from

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a given set of circumstances is not sufficient. Furthermore, in relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art. MPEP §2112.

This is not the case here, where Applicants have shown that one of ordinary skill would understand the electrode area configuration of Kato '811 to be entirely different from that suggested by the Examiner. In any event, it is clear that in Kato '811 the electrode 28 does not necessarily have an area larger than twice that of electrode 24.

It is therefore respectfully submitted that there is inadequate basis in fact and/or technical reasoning to support a rejection based on inherency.

As discussed in MPEP § 2125, "the drawings must be evaluated for what they reasonably disclosed and suggest to one of ordinary skill in the art". Regarding Fig. 2 of Kato '811, the cross section taken along line A-A gives absolutely no information regarding as to electrode area.

For example, as submitted in the Amendment under 37 C.F.R. § 1.116 filed January 21, 2003, Fig. 4 of U.S. Patent 5,403,452 to Hielscher et al. (of record) shows the situation where the cross sectional area at a single position (upper figure) provides no information regarding the electrode area (lower figure). That is, the vertical dimension of electrode 1 is much shorter than that of electrode 2, which information is not reflected in the upper cross section. A copy of the first two cover pages of U.S. Patent 5,403,452 is attached.

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Thus, there is nothing in the drawings of Kato '811 which describes or would lead one of ordinary skill to conclude that the areas of electrodes 28 and 24 differ by at least two fold as claimed.

For the above reasons, it is respectfully submitted that the rejected claims are patentable over the cited prior art, and withdrawal of the foregoing rejections is respectfully requested.

Claims 32-34 stand rejected under 35 U.S.C. § 112, second paragraph. The Examiner considered these claims as not being distinct from one another in that the recitation of intended use (e.g., ...for determining the oxygen concentration of a gas; ... for determining the humidity of the gas; ... for determining the oxygen concentration as a component of the gas containing NOx) and the voltage range applied by the circuit for applying an electric potential do not impart structural distinction. Basically, the Examiner's position was that each of claims 32-34 define a sensor having the same structure.

Applicants respectfully traverse for the following reasons.

In response, claims 32-34 have been amended to employ means-plus-function terminology, to recite that the respective sensors comprise means for applying an electrical potential in the range 0.2 V to 1.1 V; means for applying an electrical potential in the range of 1.1 V to 2.5 V; and means for applying an electrical potential in the range of 0.2 V to less than 0.5 V. By employing means-plus-function terminology, the respective functions also define structure. Thus, for example, a "means for applying an electrical potential in the range of 0.2 V to 1.1 V" would not literally encompass a circuit for applying an electric potential of, e.g., 2V.

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In the Advisory Action dated February 12, 2003, the Examiner reasoned that because of the difference in voltage values can be provided by merely adjusting a variable resistance, Applicants' claims do not recite different circuits.

Applicants respectfully disagree. In the case of applying a prior art reference, the above means-plus-function limitations require that the prior art element perform the identical function specified in the claim (i.e., applying an electrical potential in the range of 0.2 V to 01.1 V; applying an electrical potential in the range of 1.1 V to 02.5 V; etc.). See MPEP § 2182. For the same reason, although the various "means for applying an electric potential" as recited in claims 32-35 may be obvious variants, they define different subject matter. Withdrawal of the rejection under 35 U.S.C. § 112, second paragraph is respectfully requested.

Withdrawal of all rejections and allowance of claim 16-20, 22, 24 and 30-36 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

Respectfully submitted,



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